Solanum viarum Dunal (Solanaceae) a Newly Naturalized Plant to Taiwan

臺灣茄科新歸化植物－毛果茄

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Abstract

Solanum viarum Dunal is native to South America. Recently, it was found as a newly naturalized species to low to medium elevations in Taiwan. *S. viarum* is morphologically fairly similar to *S. capsicoides* All, but the seeds of *S. capsicoides* are winged whereas those of *S. viarum* are not. This paper provides its taxonomic description, illustration, distribution map, and photographs for helping the identification..

摘　要

毛果茄(*Solanum viarum* Dunal)，原產於南美洲，最近被發現於臺灣低至中海拔，爲台灣新歸化

植物。毛果茄外觀上與刺茄 (*S. capsicoides* All.) 相似，但刺茄之種子爲圓盤狀具明顯環翅；毛果茄之種子爲雙凸透鏡形，不具翅。本文描述其形態特徵、地理分布及生育地環境，並提供彩色圖片與線畫圖以資辨識。

Key Words: Solanaceae, *Solanum viarum*, naturalized plant, Taiwan

關鍵詞：茄科、毛果茄、歸化植物、臺灣

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Introduction

The family Solanaceae is divided into six subfamilies and has 92 genera and about 2,300 species worldwide (Hunziker 2001). Its species diversity is found much higher in South America than in the other continents (Hunziker 2001).

Solanum L., with approximately 1,400 species, is the largest and most diverse genus in the family Solanaceae (Bohs 2005). D'Arcy and Peng (1998) listed 18 species of *Solanum* from Taiwan. Later three more species were added in “A Checklist of the Vascular Plants of Taiwan” (Boufford *et al.* 2003), and "A Synopsis of Taiwan Seed Plants" (Yang *et al.* 2008). They were *Solanum elaeagnifolium* Cav. (Hsu and Tseng 2003), *Solanum mauritianum* Scop. (Wang 2003) and *Solanum miyakojimense* Yamazaki & Takushi (Hsu *et al.* 2007). In our recent botanical surveys, we found a newly naturalized plant, *Solanum viarum* Dunal, to Taiwan at the low to medium elevations.

Taxonomic Treatment

Solanum viarum Dunal in A. de Candolle, Prodr. 13(1): 240. 1852. 毛果茄 Figs. 1-3

Herbs or subshrubs, erect, 0.5-2 m tall, armed, minutely tomentose with muti-celled, simple, mostly glandular hairs. Stems and branches terete, densely and evenly pubescent with many-celled, simple hairs of 1 mm long, armed with recurved prickles of 2-5 mm long and 1-8 mm wide and sometimes with needlelike prickles of 1-4 mm long. Leaves unequal paired; petiole stout 3-8 cm long, armed with erect, flat straight or downward-pointing prickles of 0.3-1.8 cm; leaf blade broadly ovate, 6-20 cm long and 6-16 cm wide, with prickles and coarse, many-celled, glandular simple hairs on both surfaces, mixed with sparse, sessile, stellate hairs abaxially, base truncate to short hastate, margin 3-5-lobed; lobes blunt at apex. Inflorescences extra-axillary, subfasciculate, 1-5-flowered racemes; peduncle short. Pedicel 4-8 mm. long. Calyx campanulate, ca. 7 mm long; lobes

oblong-lanceolate, 5 mm long, hairy and sometimes prickly abaxially. Corolla white in color, recurved; lobes lanceolate, ca. 4 mm long, 12 mm wide, pubescent as on calyx. Filaments 1-1.5 mm long; anthers white to cream in colour, lanceolate, acuminate, 6-8 mm long. Ovary puberulent. Style ca. 10 mm long, glabrous. Berry green with dark veining, like a tiny watermelon when immature, dull yellow when ripe; globose, 2-3 cm in diameter; seeds brown, lenticular, 2-3 mm in diameter.

Specimens examined: TAIWAN. Taipei City: Shilin Dist. *C. M. Wang 14811* (TNM). Hsinchu County: Beipu Township, Wujhihshan, S. T. Chiu 8230, (TNM); C. M. Wang 14872 (TNM).Taichung City: Hoping Dist., Wushihkeng, C. M. Wang 14890 (TNM), T. W. Hsu 11753 (TAIE). Nantou County: Jenai Township, Chingching, *C. M. Wang 14752, 14773* (TNM). Ilan County: Yuanshan Township, Fushan Botanical Garden, *M. B. Chen 1, 2, 3, 4*(TNM).

Distribution and notes：*S. viarum* is native to Argentina and Central Brazil, and has been introduced to Africa, Nepal and most parts of India. It is a common weed in South America, India, West Indies, Honduras, Mexico, and China (Mullahey *et al.* 1998; Zhang *et al.* 1994). In Taiwan, *S. viarum* was found at the low to medium elevations and commonly in open area such as roadsides, upland fields, and open sunny soils.

Both *S. viarum* and *S. capsicoides* belong to the subgenus *Leptostemonum* (Dunal) Bitter, which comprises almost a third of the species (ca. 350-450) of the genus (Mullahey *et al.* 1998; Levin *et al.* 2006). This subgenus is distributed worldwide in the tropics and subtropics, but a few in the temperate region (Hunziker 2001).

S. viarum is fairly similar to *S. capsicoides* but distinguishable by characters of leaves, flowers, fruits, and seeds (Table 1). Leaves of *S. viarum* have coarse, muti-celled simple and glandular hairs on both surfaces whereas those of *S. capsicoides* of Taiwan has muti-celled simple hairs. Anthers of *S. viarum* are white to cream in color whereas those of *S. capsicoides* are yellow. Fruits are yellow for *S. viarum* but orange-red for *S. capsicoides*. Seeds of *S. capsicoides* are discoid with a conspicuous and thin circular wing, but those of *S. viarum* have no wing.

Table 1. A comparison of salient characters between *S. viarum* and *S. capsicoides* from Taiwan

Characters	*S. viarum*	*S. capsicoides*
Leaf	Muti-celled simple and glandular hairs	Muti-celled simple hairs
Flower		
Anther	White to cream in color	Yellow
Mature fruit	Yellow in color	Orange-red
Seed	Wings present	Wing absent

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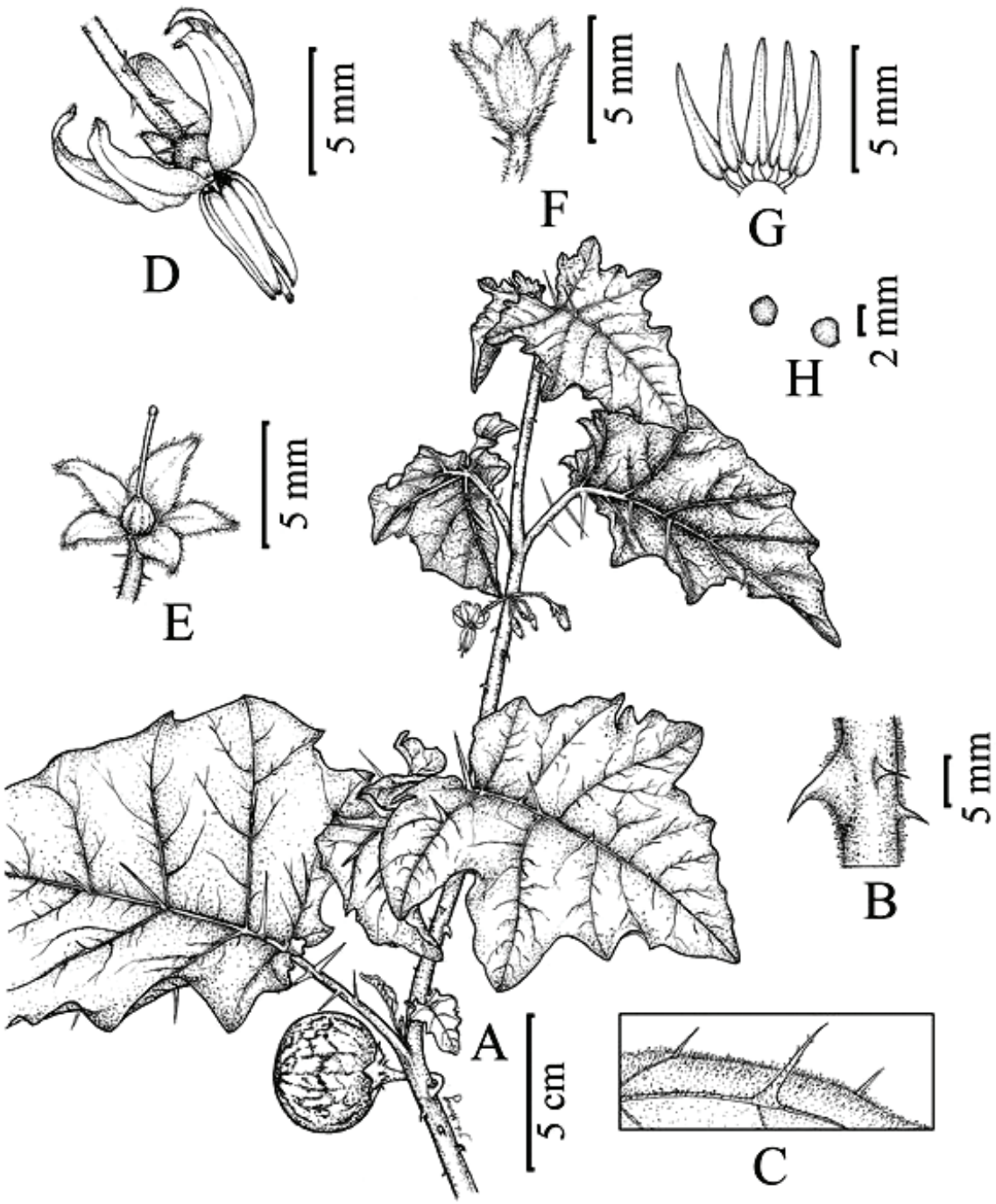

Fig. 1. *S. viarum* (A, habit; B, portion of stem; C, portion of blade; D, flower; E, calyx and pistil; F, calyx; G, stamens; H, seeds).

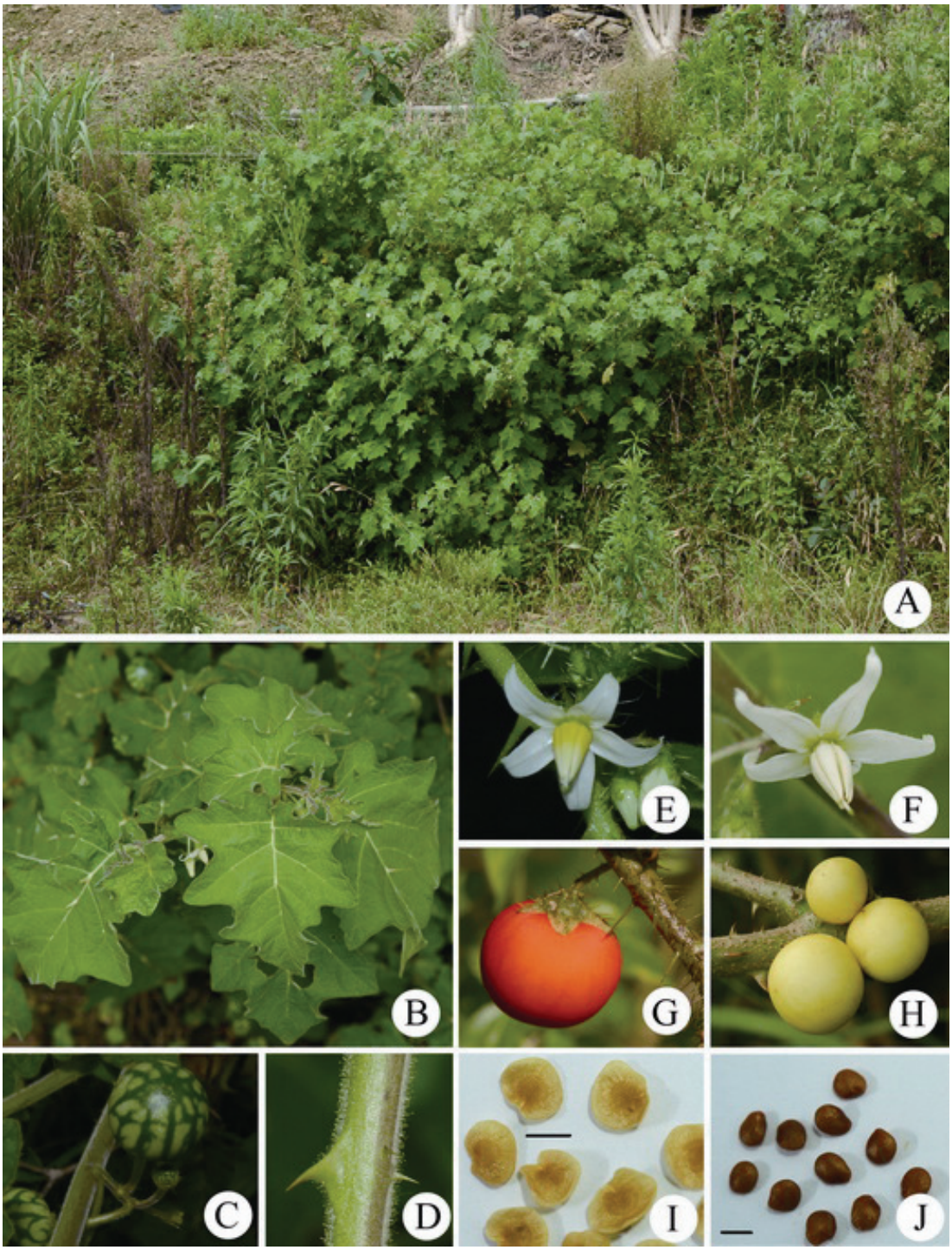

Fig. 2. Photographs of *S. viarum* (A, habitat; B, leaf; C, young fruit; D, stem; F, flower; H, fruits; J, seeds, bar=2 mm) and *S. capsicoides* (E, flower; G,, fruit; I, seeds, bar = 5 mm).

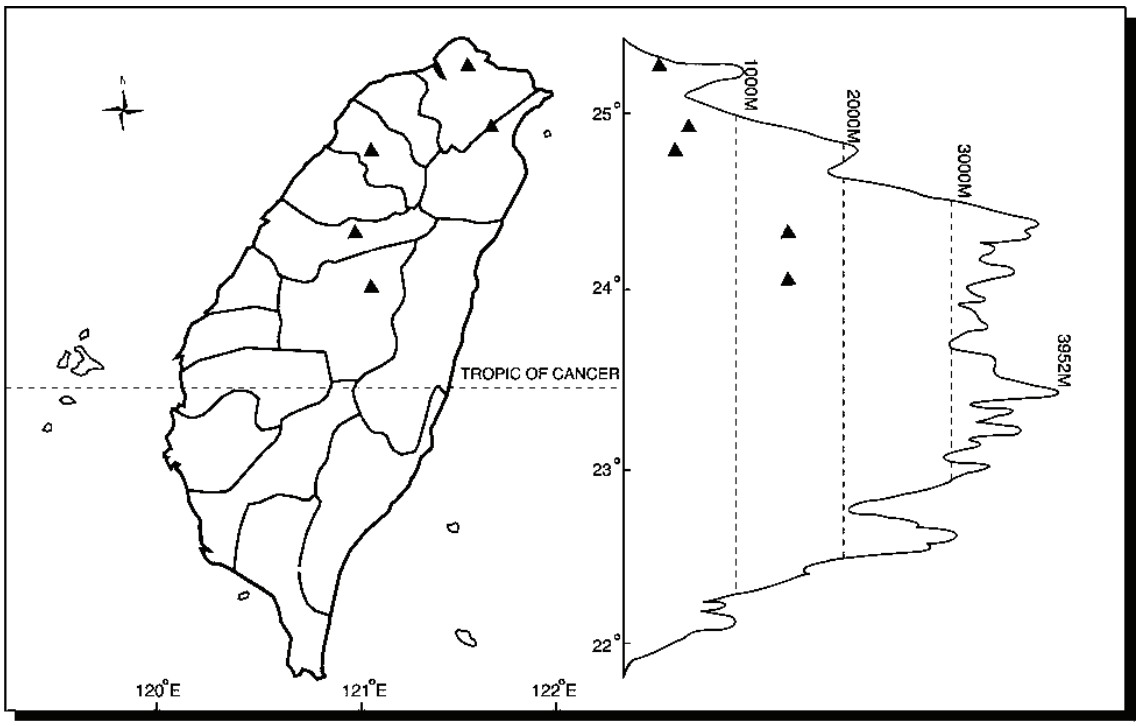

Fig. 3. Collection locations (triangles) of *S. viarum* in Taiwan (left figure) in relation to elevations (right figure).